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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,687	04/18/2001	Paolo Palmas	105345	7848
23490	7590	10/29/2003	EXAMINER	
JOHN G TOLOMEI, PATENT DEPARTMENT UOP LLC 25 EAST ALGONQUIN ROAD P O BOX 5017 DES PLAINES, IL 60017-5017			DOROSHENK, ALEXA A	
			ART UNIT	PAPER NUMBER
			1764	

DATE MAILED: 10/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/837,687	PALMAS ET AL.	
	Examiner	Art Unit	
	Alexa A. Doroshenk	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4-18-01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 8-15, 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Palmas (6,063,263).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With respect to claim 8, Palmas discloses a catalytic cracking reactor vessel (10) comprising:

a catalyst nozzle (16) for delivering catalyst to said reactor vessel (10);
a feed nozzle (17) for delivering feed to said reactor vessel (10), said feed nozzle (17) joining said catalyst nozzle (16) at a joint (near 18') proximate to a work point (18')

at which said catalyst contacts said feed to crack said feed to yield product vapor (col. 4, line 61- col. 5, line 25);

a transport conduit (15') having an inlet (39) facing away from the work point (18') (col. 7, lines 27-30), said inlet (39) for receiving said product vapor and entrained catalyst and an outlet (col. 7, lines 33-34), said inlet (39) being disposed vertically higher than said joint (near 18') between said feed nozzle(17) and said catalyst nozzle (16)(see fig. 3); and

a separator having an inlet directly communicating with said outlet of said transport conduit (col. 6, lines 21-31), said separator communicating with a vapor outlet (31) extending from said vessel (10) and a conduit (34/38) extending downwardly from said separator for transporting catalyst toward a base of said reactor vessel (col. 6, lines 56-57, col. 7, lines 11-16 and see fig. 3).

With respect to claim 9, Palmas further discloses a stripping section (14) at the base of reactor vessel (10) for stripping product vapors from said catalyst (col. 5, lines 46-48).

With respect to claim 10, Palmas further discloses wherein said stripping section (14) includes a series of trays/grids (25) and stripping medium is injected (23) into said stripping section (col. 5, lines 48-53).

With respect to claim 11, Palmas further discloses wherein said catalyst nozzle (16) includes a slot (114) for generating a curtain of catalyst (col. 8, lines 18-21 and lines 40-42).

With respect to claim 12, Palmas further discloses wherein said feed nozzle (17) includes a feed contactor (115) for injecting feed into said curtain of catalyst (col. 8, lines 14-21).

With respect to claim 13, Palmas further discloses wherein said catalyst nozzle (16) includes a funnel section (113) (see fig. 5) that dispenses through said slot (114) (col. 8, lines 18-21).

With respect to claim 14, Palmas further discloses including a heat nozzle (27) for delivering hot catalyst to said stripping section (14) (col. 5, lines 58-60).

With respect to claim 15, Palmas discloses a process for cracking a heavy hydrocarbon feed to a light hydrocarbon product (col. 1, lines 31-37) comprising:

delivering catalyst to a reactor vessel (10) through a catalyst nozzle (16);

delivering heavy hydrocarbon feed to said reactor vessel (10) through a feed nozzle (17), said feed nozzle joining said catalyst nozzle at a joint (near 18' in fig. 3);

contacting said catalyst and said heavy hydrocarbon feed at a work point (18') proximate to said joint to convert said heavy hydrocarbon feed to light hydrocarbon product vapor (col. 4, line 61- col. 5, line 25);

withdrawing said product vapor and entrained catalyst (col. 7, lines 33-34) through an inlet (39) in a transport conduit (15'), said inlet (30) being disposed vertically higher than said joint (near 18') between said feed nozzle (17) and said catalyst nozzle (16) (see fig. 3); and

transporting said light hydrocarbon product vapor from said inlet (39) through an outlet in said transport conduit directly to a cyclone and separating said entrained catalyst from said light hydrocarbon product vapor in said cyclone(col. 6, lines 21-37).

With respect to claim 18, Palmas further discloses expelling said lighter hydrocarbon product vapor from an outlet (31) of said cyclone (col. 6, lines 34-37).

With respect to claim 19, Palmas further discloses generating a curtain of catalyst before said catalyst is contacted with said heavy hydrocarbon feed (col. 8, lines 17-39).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-7, 16 and 17 are rejected under 35 U.S.C. 103(a) as being obvious over Palmas (6,063,263) in view of Castagnos, Jr. et al (5,376,339).

The applied reference of Palmas has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned

by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

With respect to claim 1, Palmas discloses a reactor vessel comprising:
a catalyst nozzle (16) for delivering catalyst to said reactor vessel (10);
a feed nozzle (17) for delivering feed to said reactor vessel (10), said feed nozzle joining said catalyst nozzle at a joint (see fig. 1 and 3) proximate to a work point (18 or 18') at which said catalyst contacts said feed to convert said feed to yield product vapor (col. 4, line 61- col. 5, line 25);

a transport conduit (15') having an inlet (39) for receiving said product vapor and entrained catalyst (col. 7, lines 33-34) and an outlet (31), said inlet (39) being disposed vertically higher than said joint (near 18') between said feed nozzle (17) and said catalyst nozzle (16) (see fig. 3); and

a cyclone (col. 6, lines 37-42) having an inlet directly communicating with said outlet (31) of said transport conduit (15).

Palmas further discloses wherein catalyst particles recovered by said cyclone are returned to the collection/stripping zone (14) at location (32) (col. 6, lines 37-42), but does not disclose an actual means to achieve this catalyst transport.

Castagnos, Jr. et al. also teaches an FCC reactor vessel which includes a cyclone (60) for separating hydrocarbon vapor and catalyst fines wherein the catalyst fines are discharged from the cyclone via a dipleg (62) to a catalyst stripper (col. 5, lines 58-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the dipleg of Castagnos, Jr. et al. in order to return

catalyst recovered from a cyclone to a stripper zone the apparatus of Palmas because Palmas explicitly teaches to return catalyst separated from a cyclone to a stripper section (col. 6, lines 38-43).

With respect to claim 2, Palmas further discloses a stripping section (14) at the base of reactor vessel for stripping product vapors from said catalyst (col. 5, lines 46-48).

With respect to claim 3, Palmas further discloses wherein said stripping section (14) includes a series of trays/grids (25) and stripping medium is injected (23) into said stripping section (col. 5, lines 48-53).

With respect to claim 4, Palmas further discloses wherein said catalyst nozzle (16) includes a slot (114) for generating a curtain of catalyst (col. 8, lines 18-21 and lines 40-42).

With respect to claim 5, Palmas further discloses wherein said feed nozzle (17) includes a feed contactor (115) for injecting feed into said curtain of catalyst (col. 8, lines 14-21).

With respect to claim 6, Palmas further discloses wherein said catalyst nozzle (16) includes a funnel section (113) (see fig. 5) that dispenses through said slot (114) (col. 8, lines 18-21).

With respect to claim 7, Palmas further discloses wherein said inlet (39) faces away from said work point (18') (col. 7, lines 27-30).

With respect to claims 16 and 17, Palmas further discloses wherein catalyst particles recovered by said cyclone are returned to the collection/stripping zone (14) at

location (32) (col. 6, lines 37-42), but does not disclose an actual means to achieve this catalyst transport.

Castagnos, Jr. et al. also teaches an FCC reactor vessel which includes a cyclone (60) for separating hydrocarbon vapor and catalyst fines wherein the catalyst fines are discharged from the cyclone via a dipleg (62) to a catalyst stripper (col. 5, lines 58-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the dipleg of Castagnos, Jr. et al. in order to return catalyst recovered from a cyclone to a stripper zone the apparatus of Palmas because Palmas explicitly teaches to return catalyst separated from a cyclone to a stripper section (col. 6, lines 38-43).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 703-305-0074. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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A handwritten signature in cursive script, appearing to read "Alexa Doroshenko".

Alexa Doroshenko

Patent Examiner

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October 27, 2003